



Capacity Building Series

SECRETARIAT
SPECIAL EDITION #14

Integrated Learning in the Classroom

Why curriculum integration?

“Research has consistently shown that students in integrated programs demonstrate academic performance equal to, or better than, students in discipline-based programs. In addition, students are more engaged in school, and less prone to attendance and behaviour problems.”

(Drake & Reid, 2010)

Over half a century of researchers and teachers have explored curriculum integration as a way to meet the many demands of 21st century curriculum and to make classroom instruction more manageable and more engaging. Ontario curriculum documents (e.g., Social Studies [2004], Mathematics [2005], Language [2006], Science and Technology [2007] and the Arts [2009]) have built on this foundation, identifying opportunities to link related content and/or skills in two or more subjects and to give students practice in meeting expectations from two or more subjects within a single unit, lesson or activity. These documents suggest that for curriculum integration to be effective, emphasis needs to be on the underlying concepts and skills that strengthen student learning and achievement in *all* areas.

There are a number of different approaches to curriculum integration (one expert has identified ten most frequently used planning models in the field [Fogarty & Stoehr, 1995]), but all share the following:

- an emphasis on backward planning from student needs/interests
- a combination of subjects
- a focus on relationships among concepts
- an emphasis on projects/tasks
- flexible scheduling/flexible student groupings
- use of authentic sources that go beyond textbooks

September 2010

ISSN: 1913 8482 (Print)
ISSN: 1913 8490 (Online)

The Literacy and Numeracy Secretariat

The *Capacity Building Series* is produced by The Literacy and Numeracy Secretariat to support leadership and instructional effectiveness in Ontario schools. The series is posted at: www.edu.gov.on.ca/eng/literacynumeracy/inspire/
For information: lns@ontario.ca

According to a recent Ontario case study ...

- Teachers and administrators identified student engagement as the most positive outcome of curriculum integration.
- Collaborative planning encouraged new thinking and new practices and led to teachers' professional growth.
- Connecting curriculum to real-world issues led to greater use of non-fiction materials and increased relevance of reading and writing activities.

Challenges included:

- Some teachers found mathematics more difficult to integrate (except when there was a "natural fit" as, for example, with data management).
- Some teachers were concerned that subject-specific expectations did not receive adequate coverage.

(Drake & Reid, 2010)

Guideline No. 1 – Think big

While planning for curriculum integration can be challenging, it can also be rewarding. Clustering curriculum expectations to meet expressed student needs entails creativity and open-minded "big picture" thinking. As well, curriculum integration creates increased opportunities to give students practice in meeting a range of curriculum expectations, throughout the program. Below are some questions to help teams get started on thinking big about curriculum and clustering expectations to meet student needs:

What are the specific student outcomes to address?

Which subjects could provide meaningful contexts for content and skill development?

What are the curriculum expectations that speak to those intended student outcomes?

Are there current events in the media that would support a choice for student inquiry?

What opportunities can be created for students to develop all four roles of the literate learner in an integrated unit of study (and through the gradual release of responsibility)?

Are the print and/or media resources available in the school suitable for use with diverse learners?

Are all the language strands integrated in a variety of authentic contexts?

Which single or blended text forms are most appropriate for developing students' thinking and communication skills?

ORGANIZING INSTRUCTION AROUND CONCEPTS

The heart of curriculum in all subject areas is a firm conceptual base and a set of essential skills that students need to learn to apply in a wide range of contexts, both to identify and analyze problems and to explore and test solutions, whether these solutions are science or arts-based (Science & Technology [2007], The Arts [2009]).

An example of curriculum integration for primary students that might facilitate a transfer of knowledge and lead to greater depth of understanding is suggested in the Sample Issues and Application sections of the Science and Social Studies curriculum documents. Focusing on the underlying concepts of "adaptation" and "interdependence," students could investigate animals (including humans) to see how environment affects their appearance and how their features adapt to meet their needs. They could also explore the interdependence of animals and how environmental changes impact their habitats and survival. An instructional strategy like a Frayer chart could be used to help students understand key words and concepts in the unit (Cunningham & Smith, 2008). Opportunities to research ways to protect animals and their environment could give students practice in developing the skills and concepts within reading and writing expectations. Students could choose to communicate their new learning in a variety of formats based on their identified purpose and audience. Forms to choose from could include those explored in class, for example written reports, or media projects such as posters, videos or blogs. Further, since students have built a schema for understanding the concepts of adaptation and interdependence, they can take this learning and connect it to their own experiences and actions in daily life.

Tips for organizing curriculum integration with big ideas in mind

- Consider student data and current school/division curriculum priorities.
- Review curriculum documents and look for points of convergence or patterns in the expectations.
- Choose a cross-discipline focus that relates to issues in students' immediate lives and the world around them to establish relevance and increase engagement.
- Look for common concepts in curriculum documents that can be applied to explain phenomena across contexts.
- Pull out common key words that might suggest a focus.
- Consider current events related to the content expectations that suggest possible problems for students to think about, investigate and respond to.
- Develop a problem that embraces the issues within the cross-discipline focus that requires consideration from more than one perspective.
- Consider which character attributes align best with the focus.

(Barton & Smith, 2000; Cartier & Pellathy, 2009; Olson, 2008)

Guideline No. 2 – Think real-world

Research tells us that students become involved in learning when tasks enable them to answer their own questions and explore their own interests (Duke, 2004; Duke et al., 2006; Howes, Lim & Campos, 2007; Ontario Ministry of Education, 2004). Teachers report that students “come alive when they realize they [are] writing to real people for real reasons or reading real-life texts for their own purposes” (Duke et al., 2006).

Creating tasks that are responsive to student interests in a cross-curricular learning inquiry is more challenging than creating closed, fact-based or skills-only tasks. To be effective, “[t]eachers must simultaneously overplan – making sure they have a variety of resources and activities to accommodate students’ interests – and underplan – remaining flexible instead of spelling out each week’s activities” (Barton & Smith, 2000, p.61). Below are some guiding questions for planning learning and designing tasks that immerse students in authentic, real-world inquiry:

Do the tasks have multiple purposes?

Do the tasks reflect a range of opportunities for students to practise and develop their communication skills beyond a learning-to-read-and-write context?

Will students see genuine purposes in the ways they are accessing and communicating information?

Will students see themselves reflected in the resources available for the purposes of this learning?

Keeping the classroom conversation going ...

- Identify ideas, issues and concepts that are meaningful in students’ lives, introduce multiple perspectives for the same concept and keep the conversation going in sustained interdisciplinary contexts.
- Break down tasks into sub-tasks that are manageable and developmentally appropriate, provide open-ended multiple entry points and help build student capacity for independent presentations.
- Provide descriptive feedback focused on student thinking and use exemplars and success criteria to help students become better thinkers.
- Introduce students to the principles of academically accountable talk to improve classroom conversations and deepen understanding.

(Literacy Numeracy Secretariat, 2010)

Four Roles of a Literate Learner

- **Meaning Maker**

Uses prior knowledge and personal and/or world experiences to construct and communicate meaning when reading, writing, speaking, listening, viewing and representing.

- **Code User**

Recognizes and uses the features and structures of written, visual and multi-modal texts, including the alphabet, sounds in words, phonemic awareness, phonics, spelling, conventions, sentence structure, text organization and graphics, as well as other visual and non-visual cues to break the “code” of texts.

- **Text User**

Understands that purpose and audience help to determine the way text is constructed: form, format, medium, structure, tone, the degree of formality and sequence of components.

- **Text Analyzer**

Understands that texts are not neutral; that they represent particular views, beliefs, values and perspectives to serve different interests; that other views and perspectives may be missing; that the design and messages of texts can be interpreted, critiqued, challenged and alternatives considered.

(Adapted Freebody & Luke, 2003)

Teachers recognize that a task is only as robust as the instruction that supports it. As each of the formative and culminating tasks is designed, it is imperative that students see authentic purposes for the forms and formats they are using. For example, using a print ad, poster, PSA or blog that the class has studied during shared reading, the teacher might help students to:

- choose a text as an exemplar (or mentor text) for their own writing/presentations
- deconstruct it for intended meaning, assumptions, contradictions, biases
- determine what makes the mentor text effective
- co-construct success criteria

Using mentor texts as exemplars and setting learning goals supported by success criteria help teachers target instruction to the needs of the students.

Intentionally designed learning tasks set in authentic contexts provide students with opportunities to learn and apply skills in a meaningful context (Ontario Ministry of Education, 2009, p. 43). These tasks, when strategically coordinated, present opportunities for students to: discover new ideas; develop thinking skills; synthesize understanding; transfer knowledge and skills from one subject to another; and demonstrate what they know and think about their world and themselves as learners.

Guideline No. 3 – Think broad context about literacy

Today’s learners face complex challenges as they make meaning, problem solve and communicate in what many have described as our “text- and media-saturated world.” In Ontario, and other jurisdictions as well, being literate is deeply defined as a complex set of skills ranging from “the ability to use language and images in rich and varied forms ... [to] the capacity to access, manage and evaluate information; to think imaginatively and analytically; and to communicate thought and ideas effectively” (Ontario Ministry of Education, 2008, p. 6). Freebody and Luke’s “Four Roles of a Literate Learner” (2003) provides a helpful model for embedding literacy instruction in content areas across the curriculum.

When designing robust tasks in an integrated learning unit, the teacher keeps both student data and the four roles in mind, introducing students to particular text forms, features and word structures, as well as providing opportunities to acquire reading fluency and to think critically. This will help students navigate the texts identified for the current focus (*code user*) as well as expose them to text forms and provide opportunities to construct them in order to reach/influence an audience (*text user*). Strategies also need to be in place so that students can read subject-based texts with sufficient understanding and assess whether the information is to be trusted and if they might take informed action (*meaning maker, text analyzer*). In this way, the Four Roles model helps teachers ensure that tasks are achievable for a wide range of learners.

“The development of skills and knowledge in language is often enhanced by learning in other subject areas” (Ontario Ministry of Education, 2006, p. 23). According to Boyle-Baise (2008) and Moss (2005), reading across subject areas is an ideal means to develop students’ knowledge of form, phrasing and expression. Students learn, for example, that “informational texts” rely on text forms (e.g., reports, explanations) that are distinct from the text forms of fiction. Students learn and understand subject-specific vocabulary as they work with text features such as tables, graphs, diagrams, inserts, indexes and glossaries. In addition, as students progress through the grades, the ability to make sense of various texts becomes critical to understanding. Using a variety of texts related to the content

under study provides opportunities to acquire literacy skills and to explore a subject from multiple perspectives. Planned opportunities for paired and small-group discussion and exploring multiple perspectives on a topic or issue allow students to think critically about text.

An example that ties it all together

THINKING BIG, THINKING REAL WORLD AND THINKING BROAD CONTEXT ABOUT LITERACY

Integrated learning units provide students with opportunities to work toward meeting expectations from two or more subject matters. Teachers using an integrated approach ensure the specific knowledge and skills for various subjects are incorporated into plans that link expectations from different subject areas. These integrated learning experiences provide students with multiple opportunities to reinforce and demonstrate their knowledge and skills in a range of contexts (Ontario Ministry of Education, 2006 p. 23).

The exploration of the inquiry questions *“How is local development affecting natural habitats in our community?”* and *“What can we do to protect these natural habitats?”* forms the basis of this integrated unit. Intentionally integrating expectations from Science and Technology, The Arts, Social Studies, and Language develops the concepts and skills from each content area students will use as they explore factors that will help them respond to these questions.

As students begin this unit, they are offered opportunities to explore their geographical region, some specific natural habitats and the animal life that these habitats support as well as development in their local community. Through tasks that integrate science and technology, social studies and language expectations, students develop the knowledge, concepts and skills required to:

- pose questions and clarify information they are uncovering to guide their exploration about these aspects of their community (Science & Technology, Social Studies)
- analyze a variety of texts including primary and secondary sources of information (Language, Social Studies)
- express opinions about the ideas and information in texts and cite evidence from the text to support their opinions (Language)
- use graphic organizers and graphs to sort information, clarify issues, solve problems, and make decisions (Science & Technology, Social Studies)

As students move closer to responding to the two over-arching inquiry questions that frame this integrated unit, they also explore possible mediums for communicating their thinking. In doing so, they explore ideas from a variety of perspectives, examining alternative views and solutions to issues they have investigated. Some specific concepts and skills students would have the opportunity to practise and develop in this portion of the unit would include:

- analyzing the impacts of human interactions with local habitats, identifying various perspectives and views presented, and suggest some possible alternative solutions (Language, Science & Technology)
- explaining why changes in the local environment have a greater impact on specialized species than on generalized species (Science & Technology)
- exploring how various mediums could provide powerful vehicles for sharing their responses to the inquiry questions (The Arts, Language)
- identifying their audience and determining the appropriate form to convey their message (The Arts, Language)

Foundational Concepts and Sample Expectations (Grade 4)

Science & Technology

FUNDAMENTAL CONCEPTS (p. 83)

- Systems and Interactions
- Sustainability and Stewardship

Social Studies: Canada and World Connections: Canada's Provinces, Territories and Region

FUNDAMENTAL CONCEPTS (p. 3)

- Systems and Structures
- Interactions and Interdependence

The Arts

Dance Strand

Creating and Presenting

- translate into dance a variety of movement sequences observed in nature
- use narrative form to create short dance pieces on a variety of themes

Drama Strand

Creating and Presenting

- demonstrate an understanding of the element of role by selectively using a few other elements of drama
- plan and shape the direction of the drama or role play by posing questions and working with others to find solutions, both in and out of role

Reflecting, Responding, and Analysing

- express personal responses and make connections to characters, themes, and issues presented in their own and others' drama works

Sample Expectations (Grade 4)

Language

Oral

- **Point of View:** identify the point of view presented in oral texts and ask questions about possible bias
- **Presentation Strategies:** identify the presentation strategies used in oral texts and analyze their effect on the audience

Reading

- **Point of View:** identify the point of view presented in a text, citing supporting evidence from the text, and suggest some possible alternative perspectives
- **Text Forms:** explain how the particular characteristics of various text forms help communicate meaning, with a focus on literary texts such as a diary or journal

Writing

- **Purpose & Audience:** identify the topic, purpose and audience for a variety of writing forms
- **Form:** write more complex texts using a variety of forms

Media

- **Creating: Purpose & Audience:** describe in detail the topic, purpose and audience for media texts they plan to create
- **Understanding: Purpose & Audience:** identify the purpose and audience for a variety of media texts

In response to the over-arching inquiry questions and learning experiences designed to develop content and skills in a range of subject areas, students could demonstrate their thinking in a variety of ways.

Students might choose to:

- engage in a debate about local issues and invite community members to attend
- design and produce a public service announcement about a local development or environmental issue
- construct and host a blog about local issues, linking to wider issues across Canada
- create a short dance piece on one of the solutions suggested to address a local concern

In designing tasks at all points within the unit, consideration is given to plan for a wide variety of experiences that incorporate:

- authentic, real-life contexts relevant to the students' lives
- entry points for all learners
- opportunities to extend and challenge student thinking
- opportunities for student-identified inquiries and choice
- collaborative learning structures that build independence and understanding
- authentic opportunities for communicating thinking in a variety of mediums
- use a variety of forms of texts and text forms including oral, multi-modal and media
- development of subject-specific vocabulary



Some Planning Tips for Integrated Learning

- **Find common concepts and ideas**

The key concepts remain constant throughout the curriculum from Grades 1 to 12. Many of the concepts (e. g., systems and structures, change and continuity) cut across subject areas. In creating integrated learning units, it is important to build on these connections.

A focus on character development can supply a lens through which to understand these developing concepts, although it is important to ensure that the character focus supports the unit in authentic ways.

- **Work with colleagues**

When grade partners, divisional teams and school communities work together to identify key concepts and curriculum expectations, they build upon one another's ideas and experiences and create consistency across grades as well as scaffold learning opportunities. Collective planning helps teams avoid repetition and ensures students are given a variety of ways to demonstrate their thinking. Communication with other divisional teams, schools and family of schools in hubs and networks allows for colleagues to share their learning on a broader scale.

- **Choose resources**

A key to effective planning is to think strategically about what students will need to understand the content, subject-specific terms, vocabulary and texts that they encounter. How will integration of specific subjects enhance student learning? What resources are available for students? How will the students demonstrate their learning? What assessment tools and strategies will be most appropriate to capture student thinking? What resources will support teachers in their planning and teaching?

Keeping a record ...

- What strands work well together?
- Why do they work well together?
- What will need revision in future applications?



Learn more about LNS resources ...

[http://www.edu.gov.on.ca/eng/
literacynumeracy/publications.html](http://www.edu.gov.on.ca/eng/literacynumeracy/publications.html)

Call:

416-325-2929

1-800-387-5514

Email:

LNS@ontario.ca

In sum

As teachers work with curriculum and instruction in a connected, cohesive way, the opportunities for students to learn deeply, pursue areas of interest and communicate their thinking will become embedded in the school day.

References

- Barton, K., & Smith, L. (2000). Themes or motifs? Aiming for coherence through interdisciplinary outlines. *The Reading Teacher*, 54(1), 54–63.
- Boyle-Baise, M., Ming-Chu, H., Johnson, S., Serriere, S., & Stewart, D. (2008). Putting reading first: Teaching social studies in elementary classrooms. *Theory and Research in Social Education*, 36(3), 233–255.
- Cartier, J., & Pellathy, S. (2009). Integration with big ideas in mind. *Science and Children*, 44–47.
- Cunningham, P., & Smith, D. (2008). *Beyond retelling: Toward higher-level thinking and big ideas*. Toronto: Pearson.
- Drake, S. M., & Reid J. (2010, Sept.). Integrated curriculum: Increasing relevance while maintaining accountability. *What Works? Research into Practice*.
- Duke, N. (2004). The case for informational text. *Educational Leadership*, 61(6), 40–44.
- Duke, N., Purcell-Gates, V., Hall, L., & Tower. (2006). Authentic literacy activities for developing comprehension and writing. *The Reading Teacher*, 60(4), 344–355.
- Elliott, P. (2010, February). Science and literacy in the elementary classroom. *What Works? Research into Practice*.
- Freebody, P., & Luke, A. (2003). Literacy as engaging with new forms of life: The “four roles” model. In G. Bull & M. Anstey (Eds.), *The literacy lexicon*. Australia: Pearson.
- Fogarty, R., & Stoehr, J. (1995). *Integrating curricula with multiple intelligences: Teams, themes, and threads*. Arlington Heights, Ill.: IRI/SkyLight Training & Publishing.
- Howes, E., Miyoun, L., & Campos, J. (2008). Journeys into inquiry-based elementary science: Literacy practices, questioning, and empirical study. *Science Education*, Retrieved July 6, 2010 from Wiley InterScience.
- Jacobs, V. (2002). Reading, writing and understanding. *Educational Leadership*, 58–61.
- Klein, P. (2008, May). Content literacy. *What works? Research into practice*.
- Literacy and Numeracy Secretariat. (2010). Literacy. Presentation to LNS Staff Meeting, September 10, 2010.
- Moss, B. (2005). Making a case and a place for effective content area literacy instruction in the elementary grades. *The Reading Teacher*, 59(1), 46–55.
- Olson, J. (2008). Concept focussed teaching: Using big ideas to guide instruction in science. *Science and Children*, 45–49.
- Ontario Ministry of Education. (2009). *The Ontario Curriculum – Exemplars Grades 3, 6, and 8. The Arts: Drama and Dance*. Toronto: Queen’s Printer for Ontario.
- Ontario Ministry of Education. (2008). *Reach every student: Energizing Ontario education*. Toronto: Queen’s Printer for Ontario.
- Ontario Ministry of Education. (2007). *The Ontario Curriculum, Grades 1–8: Science and Technology*. Toronto: Queen’s Printer for Ontario.
- Ontario Ministry of Education. (2006). *Many roots, many voices. Supporting English language learners in Ontario classrooms. A practical guide for Ontario educators*. Toronto: Queen’s Printer for Ontario.
- Ontario Ministry of Education (2006). *The Ontario Curriculum, Grades 1–8: Language*. Toronto: Queen’s Printer for Ontario.
- Ontario Ministry of Education. (2005). *The Ontario Curriculum, Grades 1–8: Mathematics*. Toronto: Queen’s Printer for Ontario.
- Ontario Ministry of Education. (2004). *Social Studies, Grades 1 to 6; History and Geography, Grades 7 and 8*. Toronto: Queen’s Printer for Ontario.
- Stead, T. (2006). *Reality Checks: Teaching Reading Comprehension with Nonfiction K–5*. Markham, ON: Pembroke.
- Wiggins, G., & McTighe, J. (1998). *Understanding by Design*. Alexandria, VA: Association for Supervision and Curriculum Development.